WHAT IS CLAIMED IS:

1. An apparatus comprising:

a first channel spatial filter, wherein a first input signal and a second input signal are input to said first channel spatial filter, and wherein a first output signal is output by said first channel spatial filter;

a second channel spatial filter, wherein a third input signal and a fourth input signal are input to said second channel spatial filter, and wherein a second output signal is output by said second channel spatial filter; and

a binaural spatial filter, wherein said first and second output signals are input to said binaural spatial filter and wherein a first channel output signal is output by said binaural spatial filter and a second channel output signal is output by said binaural spatial filter.

2. The apparatus of claim 1, wherein said first input signal is output by a first microphone corresponding to a first channel and said second input signal is output by a second microphone corresponding to said first channel, and wherein said third input signal is output by a third microphone corresponding to a second channel and said fourth input signal is output by a fourth microphone corresponding to said second channel.

3. The apparatus of claim 2, wherein said first microphone and said second microphone are positioned in a first end-fire array and wherein said third microphone and said fourth microphone are positioned in a second end-fire array.

4. The apparatus of claim 2, wherein said apparatus is a hearing aid, wherein said first microphone and said second microphone are proximate to a user's left ear, and wherein said third microphone and said fourth microphone are proximate to a user's right ear.

5. The apparatus of claim 1, wherein said first channel spatial filter further comprises:

a first fixed polar pattern unit, said first fixed polar pattern unit outputting a first unit output;

a second fixed polar pattern unit, said second fixed polar pattern unit outputting a second unit output; and

a first combining unit comprising a first adaptive filter, wherein said first combining unit receives said first unit output and said second unit output, and wherein said first combining unit outputs said first output signal.

6. The apparatus of claim 5, wherein said second channel spatial filter further comprises:

a third fixed polar pattern unit, said third fixed polar pattern unit outputting a third unit output;

a fourth fixed polar pattern unit, said fourth fixed polar pattern unit outputting a fourth unit output; and

a second combining unit comprising a second adaptive filter, wherein said second combining unit receives said third unit output and said fourth unit output, and wherein said second combining unit outputs said second output signal.

7. The apparatus of claim 6, further comprising a processor, wherein said first, second, third, and fourth fixed polar pattern units and said first and second combining units are implemented by a software program running on said processor.

8. The apparatus of claim 7, wherein said processor is a digital processor.

9. The apparatus of claim 1, said binaural spatial filter further comprising:

a first combining unit, wherein said first combining unit combines said first and second output signals and outputs a reference signal;

a first adaptive filter, said first adaptive filter receiving said reference signal;

a second combining unit, wherein said second combining unit combines said first output signal with a first adaptive filter output, and wherein said second combining unit outputs said first channel output signal;

a second adaptive filter, said second adaptive filter receiving said reference signal; and

a third combining unit, wherein said third combining unit combines said second output signal with a second adaptive filter output, and wherein said third combining unit outputs said second channel output signal.

10. The apparatus of claim 9, further comprising a processor, wherein said first, second, and third combining units and said first and second adaptive filters are implemented by a software program running on said processor.

11. The apparatus of claim 1, said binaural spatial filter further comprising:

a first channel low pass filter, said first channel low pass filter accepting said first output signal and outputting a first filtered output signal;

a first delay unit, said first delay unit accepting said first filtered output signal and outputting a delayed first filtered output signal;

a first channel high pass filter, said first channel high pass filter accepting said first output signal and outputting a second filtered output signal;

a second channel low pass filter, said second channel low pass filter accepting said second output signal and outputting a third filtered output signal;

a second delay unit, said second delay unit accepting said third filtered output signal and outputting a delayed third filtered output signal;

a second channel high pass filter, said second channel high pass filter accepting said second output signal and outputting a fourth filtered output signal;

an adaptive processor, said adaptive processor accepting said second and fourth filtered output signals and outputting an adaptively processed signal;

a first combining unit, said first combining unit accepting said delayed first filtered output signal and said adaptively processed signal, said first combining unit outputting said first channel output signal; and

a second combining unit, said second combining unit accepting said delayed third filtered output signal and said adaptively processed signal, said second combining unit outputting said second channel output signal.

12. A hearing aid, comprising:

a first microphone outputting a first microphone signal;

a second microphone outputting a second microphone signal, wherein said first and second microphones are positioned as a first end-fire array proximate to a user's left ear;

a third microphone outputting a third microphone signal;

a fourth microphone outputting a fourth microphone signal, wherein said third and fourth microphones are positioned as a second end-fire array proximate to a user's right ear;

a left spatial filter, said left spatial filter comprising:

a first fixed polar pattern unit, said first fixed polar pattern unit outputting a first unit output;

a second fixed polar pattern unit, said second fixed polar pattern unit outputting a second unit output; and

a first combining unit comprising a first adaptive filter, wherein said first combining unit receives said first unit output and said second unit output, and wherein said first combining unit outputs a left spatial filter output signal.

a right spatial filter, said right spatial filter comprising:

a third fixed polar pattern unit, said third fixed polar pattern unit outputting a third unit output;

a fourth fixed polar pattern unit, said fourth fixed polar pattern unit outputting a fourth unit output; and

a second combining unit comprising a second adaptive filter, wherein said second combining unit receives said third unit output and said fourth unit output, and wherein said second combining unit outputs a right spatial filter output signal;

a binaural spatial filter, said binaural spatial filter comprising:

a third combining unit, wherein said third combining unit combines said left spatial filter output signal and said right spatial filter output signal and outputs a reference signal;

a third adaptive filter, said third adaptive filter receiving said reference signal;

a fourth combining unit, wherein said fourth combining unit combines said left spatial filter output signal with a third adaptive filter output, and wherein said fourth combining unit outputs a left channel output signal;

a fourth adaptive filter, said fourth adaptive filter receiving said reference signal; and

a fifth combining unit, wherein said fifth combining unit combines said right spatial filter output signal with a fourth adaptive filter output, and wherein said fifth combining unit outputs a right channel output signal;

a first output transducer, said first output transducer converting said left channel output signal to a left channel audio output; and

a second output transducer, said second output transducer converting said right channel output signal to a right channel audio output.

13. A method of processing sound, comprising the steps of:

receiving a first input signal from a first microphone;

receiving a second input signal from a second microphone;

providing said first and second input signals to a first fixed polar pattern unit;

providing said first and second input signals to a second fixed polar pattern unit;

adaptively combining a first fixed polar pattern unit output and a second fixed polar pattern unit output to form a first channel binaural filter input;

receiving a third input signal from a third microphone;

receiving a fourth input signal from a fourth microphone;

providing said third and fourth input signals to a third fixed polar pattern unit;

providing said third and fourth input signals to a fourth fixed polar pattern unit;

adaptively combining a third fixed polar pattern unit output and a fourth fixed polar pattern unit output to form a second channel binaural filter input;

combining said first channel binaural filter input and said second channel binaural filter input to form a reference signal;

adaptively combining said reference signal with said first channel binaural filter input to form a first channel output signal; and

adaptively combining said reference signal with said second channel binaural filter input to form a second channel output signal.

14. The method of claim 13, further comprising the steps of:

converting said first channel output signal to a first channel audio signal; and

converting said second channel output signal to a second channel audio signal.

15. The method of claim 13, wherein said step of adaptively combining said first fixed polar pattern unit output and said second fixed polar pattern unit output to form said first channel binaural filter input further comprises the step of varying a first gain value to position a first null corresponding to said first channel binaural filter input, and wherein said step of adaptively combining said third fixed polar pattern unit output and said fourth fixed polar pattern unit output to form said second channel binaural filter input further comprises the step of varying a second gain value to position a second null corresponding to said second channel binaural filter input.

16. The method of claim 13, wherein said steps of adaptively combining utilize an LS algorithm.

17. The method of claim 13, wherein said steps of adaptively combining utilize an RLS algorithm.

18. The method of claim 13, wherein said steps of adaptively combining utilize an TLS algorithm.

19. The method of claim 13, wherein said steps of adaptively combining utilize an NLMS algorithm.

20. The method of claim 13, wherein said steps of adaptively combining utilize an LMS algorithm.